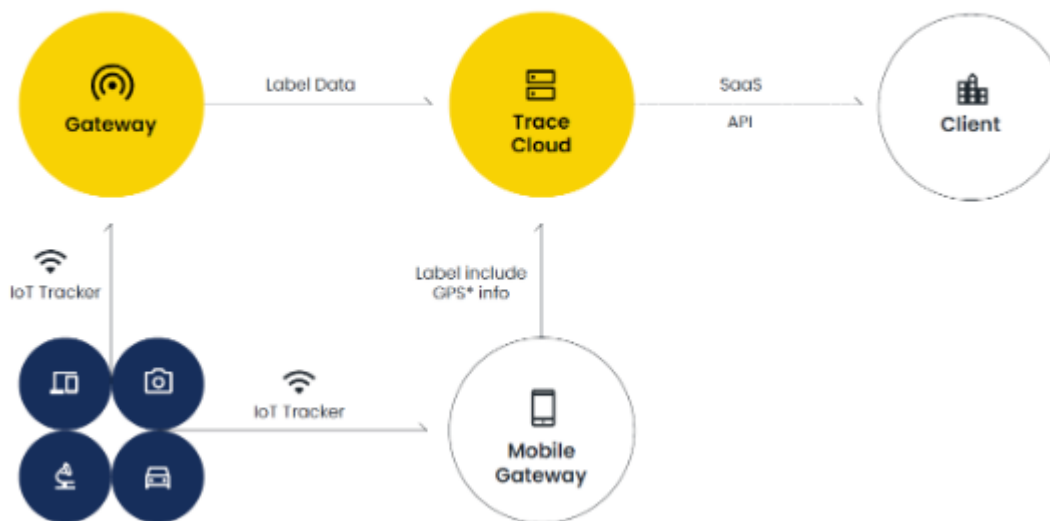# User mamnual

1. Functional Description

CG01WTS01W is Gateway for trace tag. It is composed to the embedded module with 802.11 Wi-Fi and Bluetooth. It is based on Realtek RTL8721DM solution that complied with IEEE 802.11b/g/n/a standard from 2.4~2.5GHz and 5.15GHz ~ 5.85GHz, and it can be used to provide up 11Mbps for IEEE 802.11b, 54Mbps for IEEE 802.11g, 150Mbps for 802.11n to connect your wireless LAN.

CG01WTS01W is consist of a high-perfomance MCU(KM4), a low power MCU(KM0), WLAN(802.11 a/b/g/n) MAC, an 1T1R capable WLAN baseband, RF, Bluetooth and peripherals. High speed connectivity interfaces, USB is provided. CG01WTS01W have a BLE that it receive signal to trace tags. Using WiFi, It is sending information about trace tags to network.

2. Features

- BLE – compliant
- WiFi – compliant
- Power: DC 5V(USB Power)
- Compact dimension: 31mm x 76mm x 11.2mm
- Host Interfaces: USB Interface
- RoHS compliant

3. Electrical Characteristics

ITEM	General(Electrical and Environmental)
Operating Temperature	-20℃ ~ 85℃
Operating Voltage	5V(TYP)
Current Consumption	<500mA @ TX mode <300mA @ RX mode
Embedded Memory	8MB PSRAM
Connector	USB A-type
Button	1EA
LED	RGB LED - 1EA
ITEM	Mechanical
Size	30mm x 76mm x 11.2mm
Weight	18.64g

4. RF Specifications

All measurements are made under nominal supply voltage, room temperature, and conducted conditions at each antenna port except antenna.

ITEM		RF - WiFi
RF SPEC (IEEE 802.11b)	Operating Frequency	2400 ~ 2483.5MHz ISM band
	Radio Modulation	DQPSK , DBPSK and CCK with DSSS
	Date Rate	at most 11Mbps
	Receiver Sensitivity	-83 dBm for 11Mbps
RF SPEC (IEEE 802.11g)	Operating Frequency	2400 ~ 2483.5MHz ISM band
	Radio Modulation	QPSK , BPSK , 16QAM ,64QAM with OFDM
	Date Rate	at most 54Mbps
	Receiver Sensitivity	-71 dBm for 54Mbps
RF SPEC (IEEE 802.11a)	Operating Frequency	5.15~5.25GHz/5.25~5.35GHz/5.47~5.725GHz/5.725~5.825GHz
	Radio Modulation	QPSK , BPSK , 16QAM ,64QAM with OFDM
	Date Rate	at most 54Mbps
	Receiver Sensitivity	-71 dBm for 54Mbps
RF SPEC (IEEE 802.11n)	Operating Frequency	2400 ~ 2483.5MHz ISM band 5.15~5.25GHz/5.25~5.35GHz/5.47~5.725GHz/5.725~5.825GHz
	Radio Modulation	QPSK , BPSK , 16QAM ,64QAM with OFDM
	Date Rate	at most 150Mbps
	Receiver Sensitivity	2.4GHz: -68 dBm at MCS7 @ 25℃ & HT20 5GHz: -68 dBm at MCS7 @ 25℃ & HT20 5GHz: -66 dBm at MCS7 @ 25℃ & HT20
ITEM		RF - BLE
RF SPEC (BT 5.0)	Operating Frequency	2402MHz-2480MHz
	Symbol Rate	2 Mbps
	Receiver Sensitivity	-90dBm @PER = 30.8%

5. FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation of the device.

FCC Information to User

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Caution

THE GRANTEE IS NOT RESPONSIBLE FOR ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

IMPORTANT NOTE : FCC RF Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

6. CE Traceability

Product Name: WiFi BLE Gateway

Model Name: CG01WTS01W

Manufacturer: SOLUM CO., LTD.

(Address: 357, Yongin Techno Valley Building A, Guseong-ro, Giheung-gu, Yongin-si, Gyeonggi-do, 16914, Republic of Korea)
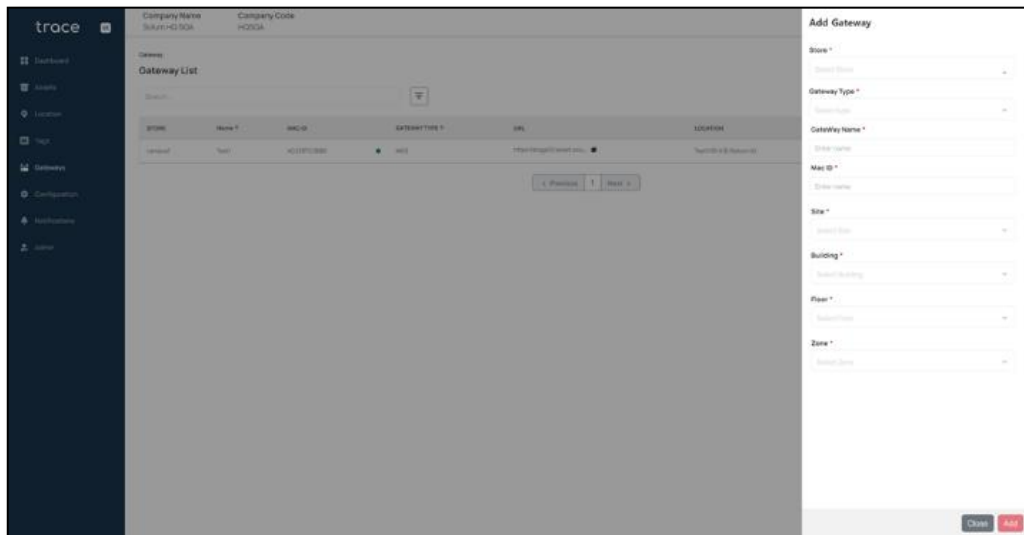
The SOLUM Gateway is a device allocated to specific areas within a building to receive BLE (Bluetooth Low Energy) signals and transmit them to a server.
You can configure parameters (such as upload cycle, filtering values, etc.) and assign areas (Zones) for registration.
Once installed, gateways scan nearby tags, indicating that the tagged assets are present in that location.

Registering Gateways in the Asset Management System

1. Go to the left menu and click on "Gateways" to navigate to the Gateway List page.

2. Click the "Add Gateway" button on the top right to enter gateway information.

   a. Store: Select the base/branch organization.
   b. Gateway Type: Solum.
   c. MAC ID: Mac Address.
   d. Installation Area Information: Select Site > Building > Floor > Zone in order.

e.   Configure parameters

i.   Packet MaxSize: Set a limit on the number of packets uploaded at one time.
ii.   Upload Interval: The cycle of uploads. Upload State Interval: The cycle for gateway connection state notifications (a multiple of Upload Interval).
iii. Duplicate Filter: Filter for duplicates.
iv. App Interval: Update setting cycle (the cycle at which the gateway requests the server when settings are changed).
v.   RSSI Filter: The gateway filters out packets with RSSI lower than this value.

Installation and Configuration

After registering the gateway in the application, you must physically install and activate the gateway in the designated area.

1. **Solum Gateway**
    A.   Connect power and install (USB Plugin Charger).
    B.   WiFi Provisioning status (BLUE LED Blinking).
    C.   Run the Configuration App to connect to WiFi.
    D.   Select the gateway that needs to be set up.
    E.   Choose an SSID from the WiFi list.
    F.   Enter the WiFi password to connect.
    G.   Once the download from DPS is successfully completed, and the Green LED Blinking status is on, it starts Scan/Upload mode

Asset Location

Once the gateway registration and installation are complete, you can check the location of assets as follows.